PRODUCTION OF ALUMINUM NITRIDE SINGLE CRYSTAL

Patent number:	JP60122797
Publication date:	1985-07-01
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Classification:	
- international:	C30B29/38
- european:	C30B9/00
Application number:	JP19830230770 19831207
Priority number(s):	JP19830230770 19831207

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Abstract of JP60122797

PURPOSE:To produce easily a large-sized AlN single crystal by adding alkaline earth metallic oxide to AlN and melting the mixture by heating then cooling slowly the melt. CONSTITUTION:20-70wt% alkali earth metallic oxide (e.g.: CaO) as a flux and, if necessary, PbO, Fe2O3, Li2O and Na2O are added and mixed to AlN powder and after the mixture is heated and melted to 1,750-2,200 deg.C in an inert gaseous atmosphere, the melt is slowly cooled to solidify at a cooling rate of about 0.5 deg.C/hr. The dense and large-sized AlN single crystal effective as a circuit board material is thus obtd.:

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Partial Translation of JP 1985-122797

Publication Date: July 1, 1985

Application No.: 1983-230770

Filing Date: December 7, 1983

Applicant: TOKYO SHIBAURA ELECTRIC CO

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2. Claims

(1) A method of production of an aluminum nitride single crystal, comprising the steps of:

adding and mixing a flux of an alkaline earth metal oxide to aluminum nitride;

heating and melting the resultant mixture; and

slowly cooling the resultant melt to grow the aluminum nitride single crystal.

(2) The method of production of the aluminum nitride single crystal according to claim 1, wherein CaO, BaO and SrO are used as the alkaline earth metal oxide.

(3) The method of production of the aluminum nitride single crystal according to claim 1, wherein the heating melting temperature is set to 1750 to 2100 °C.

From line 11 to 13 of top right, page 2.

It is preferable to use the crucible capable of being rotated and to slowly cool the crucible while rotating the crucible.

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